ABSTRACT:

There is general agreement that waste tyres should be better managed in order to preserve valuable resources and prevent environmental damage as a result of improper disposal. This paper describes the use of crumb rubber in concrete paving blocks. Existing block material is characterised as a composite with high compressive strength but with low toughness; the addition of rubber improves toughness while meeting minimum strength requirements. A total of 4300 rubberised concrete paving blocks were produced in a commercial plant, and 348 were tested for compression and abrasion performance, sound absorption, voids and skid resistance. The test results revealed that rubber substitution should not exceed 20% by sand volume in order to avoid excessive reductions in compressive strength. Further investigations showed that sound absorption and toughness were improved as the rubber content in the mix increased. The specimens showed a significant capability for absorbing dynamic loading and resisting crack propagation, which is beneficial for pavements that require good impact resistance properties.